"A STUDY TO ASSESS THE EFFECTIVENESS OF SELF-INSTRUCTIONAL MODULE ON KNOWLEDGE REGARDING POLYCYSTIC OVARIAN SYNDROME AMONG ADOLESCENT GIRLS IN SELECTED PRE-UNIVERSITY COLLEGES AT BANGALORE."

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INTRODUCTION

Adolescence is the transitional phase of growth and development between childhood and adulthood. Hormone imbalances are becoming increasingly common due to changes in diet and other environmental factors. In the past, hormone problems usually affect older women, usually in their forties or fifties. Today, more teenage girls are showing signs of hormone imbalance. For a teenage girl, problems associated with a hormone imbalance can be particularly disturbing and embarrassing.

The establishment of a regular menstrual cycle is an important process for an adolescent girl. The term, polycystic means many cysts and polycystic ovarian syndrome (PCOS) gets its name because of clusters of small, pearl-sized cysts in ovaries. These cysts are fluid-filled bubbles (called follicles) that contain eggs that have not yet been released because of hormonal imbalance.

Polycystic ovarian syndrome is a problem in which a woman's hormones are out of balance. It can cause problems with menstrual cycles, infertility, obesity, overproduction of testosterone, and metabolic disturbances, including type II diabetes and lipid (blood fat) abnormalities. It also causes sleep apnea.

Polycystic Ovarian Syndrome (PCOS) often presents in adolescence with menstrual disorders, acne, and hirsutism. This may cause psychological disturbance and may negatively affect the quality of their life.

However, many of the symptoms and characteristics of PCOS are present in a young girl even before she begins menstruation. Adolescents' challenge is that PCOS is a systemic, complex disorder that needs to be actively managed by them for the rest of their lives. They need to go to a deeper level and develop certain health practices that will help their body to naturally minimize the symptoms and long-term risks of polycystic ovarian syndrome.

The early recognition and prompt treatment of polycystic ovarian syndrome in adolescents is important to prevent long-term sequelae.

Review of the literature for the present study has been organized under the following headings.

1. Studies related to the prevalence of polycystic ovarian syndrome

2. Studies related to general aspects of polycystic ovarian syndrome

3. Studies related to treatment and nursing management of polycystic ovarian syndrome

4. Studies related to complications of polycystic ovarian syndrome

Literature related to the prevalence of polycystic ovarian syndrome.

A study aimed to ascertain the prevalence of PCOS in a randomly selected sample of reproductive-aged female participants of the Tehran Lipid and Glucose Study (TLGS). One thousand and two women, aged 18-45 years, were randomly selected from among reproductive-aged women who participated in the TLGS. The results revealed that the prevalence of PCOS was 8.5% (95% CI: 6.8% - 10.2%). The study concluded that PCOS is one of the most common gynecological endocrinopathies among reproductive-aged women.

A study was conducted to investigate the prevalence of polycystic ovaries among patients with hirsutism and menstrual abnormalities and to correlate the presence of hirsutism with BMI, polycystic ovaries, ovarian volume, and biochemical markers in the outpatient clinic of Obstetrics and Gynaecology, Shalamar Hospital. Results revealed that the prevalence of polycystic ovaries was 815% among patients with hirsutism.

A study aimed to assess the relationship between the serum levels of anti-mullerian hormone (AMH) and other hormonal markers and results of assisted reproductive techniques (ART) in polycystic ovary syndrome (PCOS) patients. The results revealed that there was a significant direct correlation between the serum mullerian inhibiting substance (MIS) level and with number of totals picked-up oocytes of patients with PCOS.

A case-control study was conducted with 34 adolescents during the period of 2 to 4 years after menarche to assess the presence of insulin resistance as well as the incidence of PCOS in adolescents with menstrual disorders. The presence of PCOSs was detected in 95% of the adolescents with menstrual irregularity.

A study was conducted on the prevalence of PCOSs among urban adolescent girls and young women in Mumbai. The study concluded that the dermatological effects of PCOSs can have a deleterious effect on an adolescent girl's self-image and peer interaction. Weight gain and menstrual uncertainties affect body image and lead to further stress including the family members.

A prospective study was conducted to find out the prevalence of polycystic ovarian syndrome (PCOS) in Indian adolescents. Data was collected from 460 girls aged 15 to 18 years. Out of 460 girls, 9.13% had PCOS. So early diagnosis and treatment of PCOS in adolescent girls is necessary.

A cross-sectional study was conducted on the prevalence of PCOS among adolescent girls from a selected school in Iran. The study concluded that the prevalence of the syndrome was 4.8%. were diagnosed with PCOS.

A cohort study was conducted to determine the prevalence of depressive disorders in young women with PCOS. The results revealed that women with PCOS were at increased risk for depressive disorders.

A comparative study was conducted in New Delhi regarding the prevalence of clinical manifestations in obese and lean PCOS women and their health hazards. Group A included overweight and obese, Group B included normal weight and lean and were further divided into two groups according to their body mass index. The result found that the prevalence of menstrual irregularities, clinical hyperandrogenism, endometrial hyperplasia, and type 2 DM was significantly higher in the obese group, whereas android central obesity was similar in both groups.

A study was conducted on the prevalence of polycystic ovarian syndrome and its etiological factor in first-degree relatives of patients with polycystic ovarian syndrome (PCOS). The presence of hirsutism and hyperandrogenaemia was determined in the mothers and sisters of the patients with PCOS. The rates of polycystic ovarian syndrome (PCOS) in mothers and sisters of patients with PCOS were 24% and 32%, respectively, although the risk was higher in untreated premenopausal women. The study highlights that there is involvement of a major genetic component in the disorder.

Review of literature related to general aspects of polycystic ovarian syndrome.

A cumulative study was conducted at the University of Alabama at Birmingham among 400 unselected consecutive reproductive women (18–45 years of age) to detect the prevalence of PCOS. The study shows that the cumulative prevalence of PCOS in the selected population was 6.6% (26.5 of 400).

A prospective cross-sectional study was conducted at a reproductive medicine clinic, in the UK on women with anovulatory PCOS, to establish if visceral fat mass was the most significant variable correlating with insulin resistance and other metabolic parameters in women with PCOS. The study shows that there was a strong linear correlation between visceral fat and insulin resistance.

A study was conducted to determine whether obesity increases the risk of PCOS and whether the degree of obesity of PCOS patients has increased. Data were analysed from two consecutive population studies. Participants included 675 women who participated in prevalence studies and 746 PCOS patients. Thus, the study concluded that obesity contributes to PCOS, and PCOS patients are at risk of becoming obese.

A descriptive study was conducted to describe patient perception and awareness of PCOS. About 657 women of the age group of 26-34 years were included in the study. A questionnaire was used, and the study revealed that patients' emotions associated with a diagnosis of PCOS include frustration (67%), anxiety (16%), sadness (10%), and indifference (2%). Therefore, awareness regarding PCOS can be achieved through wide public service announcements or other structured media exposure, as they would be helpful.

A study was conducted on the prevalence of PCOS in Women of Reproductive age. 189 healthy women aged between 20-45 years were included in the study. The women were divided into 2 groups, those 35 years of age and younger and those 36 years of age and older, on cycle days 1-6 transvaginal ultrasound was performed and blood samples were collected. There was a 14.2% prevalence of PCOS in the entire group (27/189). The prevalence was 21.6% in women 35 years and younger and 7.8% in women 36 years and older. Significantly more irregular cycles were seen in women with PCOS than in those with normal (44%v/s 19%). The study result was that in healthy women, the prevalence of PCOS varies with age. The binding is more common in women younger than 35 years.

A Study was conducted on PCOSs in adolescent girls. It has traditionally been thought of as a triad of oligomenorrhea, hirsutism, and obesity. PCOS is now recognized as a heterogeneous disorder that results in the overproduction of androgens primarily from the ovary leading to anovulation and hirsutism and is associated with 23 insulin resistance. Treatment should be instituted early to decrease symptoms and long-term sequelae of PCOS.

Polycystic ovary syndrome is a complex, multifaceted, heterogeneous disorder that affects approximately 5 to 10% of women of reproductive age. It is characterized by hyperandrogenism, polycystic ovaries, and chronic anovulation along with insulin resistance, hyperinsulinemia, abdominal obesity, hypertension, and dyslipidemia as frequent metabolic traits, a metabolic syndrome that culminates in serious long-term consequences such as type 2 diabetes mellitus, endometrial hyperplasia, and coronary artery disease. It is one of the most common causes of anovulatory infertility. However, the heterogeneous clinical features of PCOS may change throughout the life span, starting from adolescence to postmenopausal age, largely influenced by obesity and metabolic alterations, and the phenotype of women with PCOS is variable, depending on the ethnic background. The etiology of PCOS is yet to be elucidated; however, it is believed that in utero fetal programming may have a significant role in the development of PCOS phenotype in adult life. However, a woman may be genetically predisposed to developing PCOS.

A retrospective study was conducted to evaluate the incidence, treatment, and outcome of patients with polycystic ovarian syndrome at an infertility centre in Spain. The sample size of this study was 2270. The study revealed that the incidence rate of women suffering from polycystic ovarian syndrome was 46.50% 77% of women underwent polycystic ovarian syndrome and total of 44.77% of women got pregnant through intrauterine insemination and 22% of women got pregnant through clomiphene polycystic ovarian syndrome.

Literature related to the treatment and nursing management of polycystic ovarian syndrome.

Treatment for polycystic ovarian syndrome is complex and is limited to addressing the syndrome rather than providing a cure. It should be based on the patient's wishes and concerns regarding symptoms and management. The goals of treatment include suppression of hyperandrogenism to improve acne and hirsutism, resumption of reproductive function for desired fertility, endometrium protection, and the reduction of the long-term risks of type 2 diabetes and cardiovascular disease. No single therapy treats all aspects of PCOS and some will treat one symptom but exacerbate another, and so are mutually exclusive. There are two types of therapy for hirsutism - cosmetic hair removal and pharmacotherapy. Cosmetic removal includes temporary measures such as tweezing, shaving, waxing, and depilatories, while electrolysis and laser treatment will remove hair permanently (Hill, 2003). These treatments should not be attempted until six months after the start of medical therapy, or there will be a re-growth of coarse hair.

Offering psychosocial support can be one of the most important aspects of managing this syndrome. This begins by building positive, supportive relationships with adolescents diagnosed with PCOS. These relationships will allow the adolescent to express her feelings and concerns regarding having a chronic disease whose signs and symptoms can greatly impact one's body image and self-esteem. Education is another important component of psychosocial support. Through education, the adolescent can become knowledgeable about the disease and available treatment options. The adolescent will then feel empowered to make informed healthcare decisions on her own.

A study conducted a study for screening and treatment of PCOS in teenagers. Adolescents with PCOS are at an increased risk of developing health problems later on in life. Furthermore, the physical signs of PCOS can be detrimental to a teenage girl's self-image. Early diagnosis and treatment of PCOS in adolescents are essential in ensuring adulthood health and restoring self-esteem. Emotional and financial strains could have been prevented if PCOS were diagnosed in teenagers.

A study conducted has given some recommendations for the early recognition and prevention of PCOS. The symptoms of PCOS commonly occur during or soon after the onset of puberty, which may preclude early recognition of the disorder, because the clinical expression of gonadal activation with pubertal development may bear close resemblance to that of PCOS. The single most important finding is that of progressive hirsutism. Efforts to minimize the clinical findings of PCOS in young adolescent girls depend on early diagnosis and timely suppression of excess ovarian androgen production.

A study was conducted a study on cognitive behavioral therapy for physical and emotional disturbances in adolescents with PCOS to evaluate the feasibility and effectiveness of enhanced cognitive behavioral therapy, and primary and secondary control enhancement training for physical and emotional disturbances in adolescents with PCOS. In an open trial, 12 adolescents with PCOS, obesity, and depression underwent eight weekly sessions and three family-based sessions of training and family psychoeducation the results include a significant decrease in weight across the eight sessions. Depressive symptoms also decreased.

A study published in the Journal of Adolescent Medicine as current opinion in pediatrics conducted a study on polycystic ovary syndrome update in adolescents 26 to provide an overview of our current understanding of polycystic ovary syndrome, its epidemiology and natural history, and potential therapeutic options. While once thought to affect primarily adult women, PCOS is frequently diagnosed during adolescence and may be increasing in prevalence secondary to the recent trend of increasing obesity among teenagers. There is increasing evidence that these women are also at increased risk later in life for cardiovascular and metabolic disease. Early treatment may prevent disease progression.

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Literature related to complications of polycystic ovarian syndrome.

A study aimed to analyze the changes of polysomnographic variables in obese adolescents with PCOS in a longitudinal analysis. Fifteen adolescents with PCOS underwent overnight 12-channel polysomnography at baseline and after a mean duration of 28 ± 6 months. Results revealed that the polysomnographic variables, the parameters of body weight/body composition, and the parameters of glucose metabolism in the study group did not change significantly during the observation period. The serum levels of total testosterone and sex hormone-binding globulin increased significantly, whereas the free androgen index decreased significantly. At follow-up, the polysomnographic variables of the study group did not differ from 27 those of healthy female adults. The study concluded that OSAS does not seem to develop in adolescents with PCOS being treated for hyperandrogenism and insulin resistance.

A study was conducted to compare reports of urine leakage and quality of life between women with and without polycystic ovarian syndrome. One hundred thirteen 18-to 40-year-old nulliparous women with polycystic ovarian syndrome or without the syndrome (controls) were recruited. The subjects were not taking any hormonal medication, had not undergone previous pelvic surgery, and did not exercise their pelvic floor muscles. Results revealed a significant difference in urinary function between groups, with 24% of the subjects in the control obese group reporting urinary incontinence. The mean scores for the SF-36 questionnaire revealed that group II had the lowest quality of life.

A Retrospective study was carried out to determine whether maternal Polycystic ovary syndrome (PCOS) is associated with adverse pregnancy outcomes. It includes 516 consecutive Italian women who delivered between January and April 2006 women with hyperandrogenic features not configuring PCOS (Intermediate group) and non-hyperandrogenic controls 229 women. The study shows that Gestational diabetes mellitus was significantly more frequent in the PCOS group than in the other group.

A study was conducted to determine the early metformin treatment to prevent adolescent polycystic ovarian syndrome (PCOS) in Italy. A sample of 18 girls between ages 15 to 18 years were enrolled in the study and received 1700mg/day tab for 6 months were evaluated for the effects of metformin treatment on ovulatory function, hirsutism, acne, hormonal patterns, and body weight. The study result shows that 6 months after the end of metformin treatment, menstrual cycles continued to be regular and ovulatory with normal BMI. Side effects were slight. The study concludes that metformin can cause hyperandrogenic symptoms.

MATERIALS AND METHODS USED FOR THE STUDY:

Designing research involves the development of a plan or strategy that will guide the collection and analysis of data. The methodology of the study consists of the research approach, research design, setting of the study variables under study, population, sample and sample size, sampling technique, development of the tool, development of SIM, method of data collection, and plan for data analysis.

1. One Group Pre-Test Post-Test Design:

2. Setting: This study was undertaken in three selected Pre University colleges of Bangalore, namely, Prathan, NDRK, and Govt. P U.College.

3. Population: In this study, the population comprises adolescent girls from selected Pre-University colleges in Bangalore.

4. Sample Size and Sampling Technique: The number of samples used for the study was 60 and a Simple random sampling technique was used.

5. Criteria for Selection of the Sample:

Inclusion Criteria:

1. Adolescent girls studying in selected Pre-University colleges in Bangalore.

2. Adolescent girls who are available at the time of data collection.

Exclusion Criteria:

1. Adolescent girls who are not willing to participate in the study.

2. Adolescent girls who are not present at the time of data collection.

3. Adolescent girls who are not studying in Selected P.U.Colleges at Bangalore.

6. Instruments and Tools for Data Collection:

The tool was prepared based on the review of literature and guidance of experts from the field of Obstetrics and Gynaecology.

SECTION A: Socio-demographic variable

SECTION B: Structured Knowledge Questionnaire

7. Variables of the study:

Independent Variable: In the present study it refers to the SIM regarding PCOS among adolescent girls.

Dependent variables: In this study dependent variable is the knowledge of adolescent girls regarding PCOS.

Extraneous variable: Demographic variables selected for this study are age, sex, religion, area of residence, type of family, annual family income, previous knowledge, and source of information.

8. Techniques for Data Analysis and Interpretation:

Description of the subjects to demographic variables was presented in terms of frequency and percentage.

Mean, Standard Deviation, and Mean Percentage were used to evaluate the knowledge level. The statistical significance of the effectiveness of SIM was analyzed using the Paired _t_ test.

The chi-square test was used to find out the relationship between demographic variables and knowledge level.

DATA ANALYSIS AND INTERPRETATION

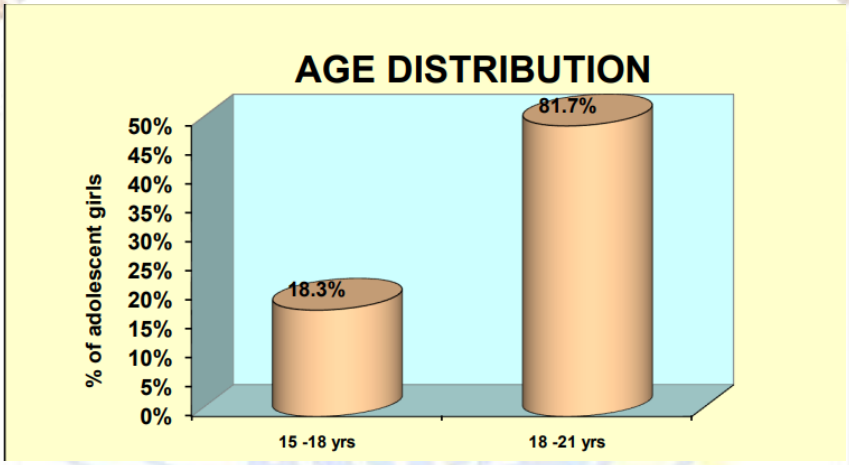
The process of evaluating data using analytical and logical reasoning to examine each component of the data provided. This form of analysis is just one of the many steps that must be completed when conducting a research experiment. Data from various sources are gathered, reviewed, and then analyzed to form findings or conclusions. There are a variety of specific data analysis methods, some of which include data mining, text analytics, and data visualizations.

DESCRIPTION OF SOCIO-DEMOGRAPHIC VARIABLES IN FREQUENCY AND PERCENTAGE.

Demographic variables		No. of adolescent girls	%
Age	15 -18 yrs. 18 -21 yrs.	11 49	181.7% 8.3%
Religion	Hindu Christian Muslim Others	29 18 8 5	48.3% 30% 13.3% 8.3%
Type of Family	Nuclear family Joint family Extended family	25 22 13	41.7% 36.7% 21.7%
Father - Education	Primary education PUC Graduation & above No formal education	13 16 19 12	21.7% 26.7% 31.7% 20.0%
Mother - Education	Primary education PUC	9 14	15% 23.3%

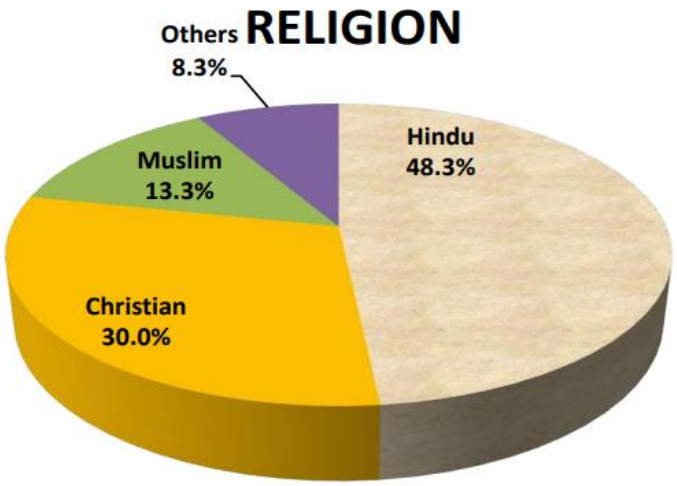
	Graduation & above No formal education	22 15	36.7% 25.0%
Monthly Income	Rs.1000-2000 Rs.3000-4000 Rs.5000-6000 >Rs.6000	18 17 14 11	30% 28.3% 23.3% 189.3%
Residence	Rural Suburban Urban	15 27 18	25% 45% 30%
Heard about Polycystic Disorder	Yes No	29 31	48.3% 51.7%
Source of information	Family members Friends Mass media No information	14 9 6 31	23.3% 15.0% 10.0% 51.7%

The table shows the demographic information of adolescent girls who participated in the study.



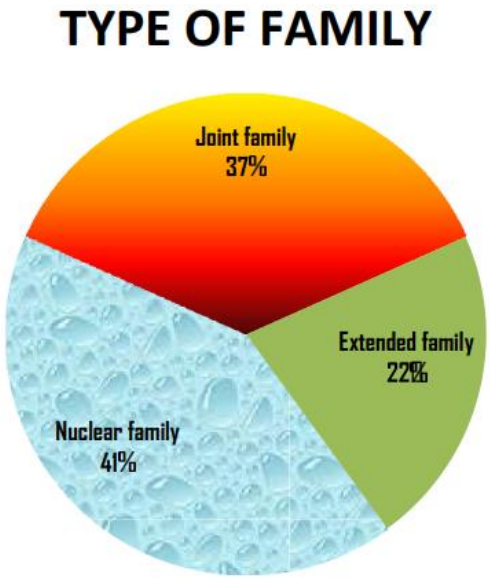
BAR DIAGRAM SHOWING THE DISTRIBUTION OF THE SUBJECTS ACCORDING TO AGE.

The majority of adolescent girls' 81.7 percent were in the age group of 18-21 years followed by 18.30 percent in the age group between 15-18 years.



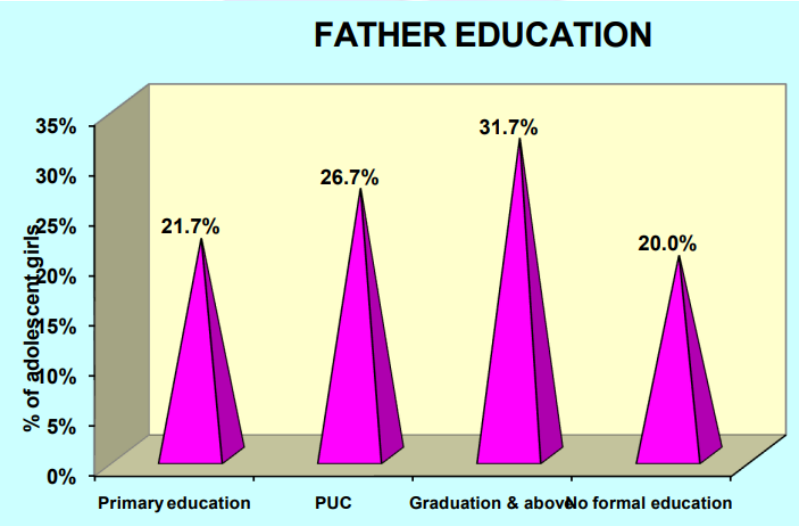
PIE DIAGRAM SHOWING THE DISTRIBUTION OF THE SUBJECTS ACCORDING TO RELIGION

The socio-demographic variable related to religion indicates that 48.3% of adolescent girls were Hindus,30% were Christians and the remaining 13.3% of them were Muslims.



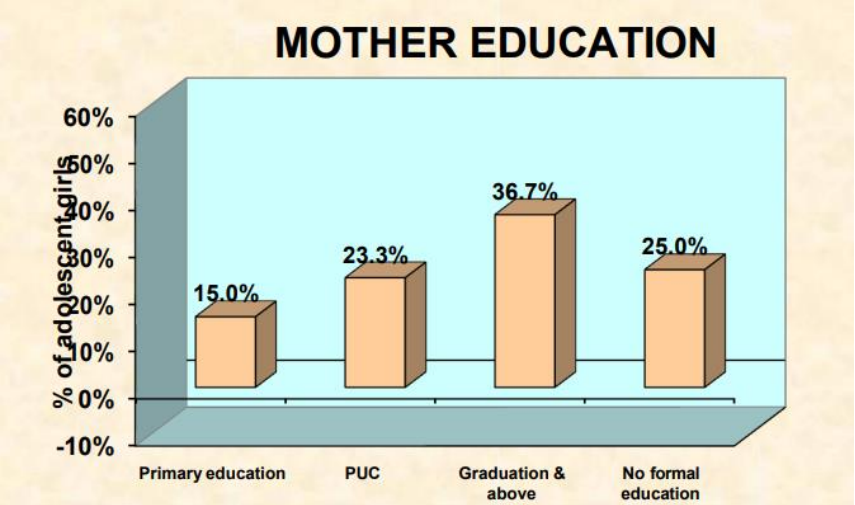
PIE DIAGRAM SHOWING DISTRIBUTION OF THE SUBJECTS ACCORDING TO TYPE OF FAMILY.

The above table and figure explain the distribution of adolescent girls according to their type of family.41 % belong to the nuclear family,37.0% belong to the joint family and 22% were from extended family.



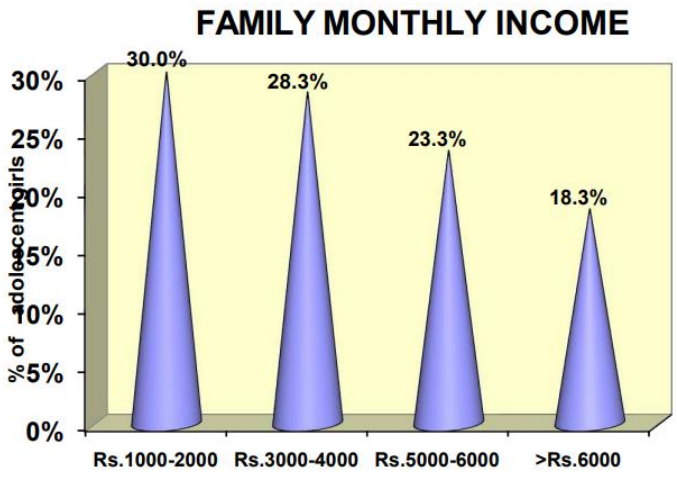
SIMPLE BAR DIAGRAM REPRESENTING DISTRIBUTION OF SAMPLES ACCORDING TO EDUCATION OF FATHER.

The above table and figure explain the distribution of samples according to the education of the father. 31.7% had graduated,26.7% PUC,21.7% had primary education and 20% had no formal education.



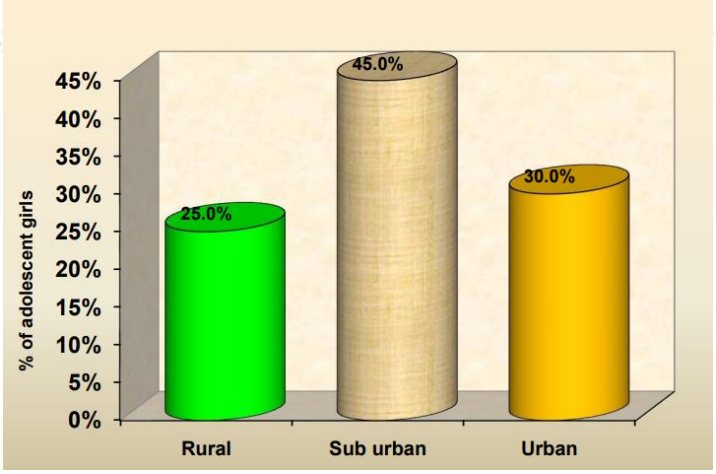
SIMPLE BAR DIAGRAM REPRESENTING DISTRIBUTION OF SAMPLES ACCORDING TO THE EDUCATION OF THE MOTHER.

The above table and figure explain the distribution of samples according to the education of the mother 36.7% had graduation,23.3% PUC,15% had primary education whereas 25% had no formal education.



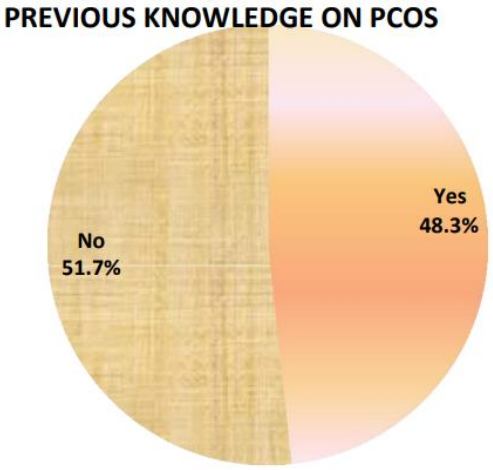
SIMPLE CONE DIAGRAM REPRESENTING FAMILY INCOME

The given table and figure show the distribution of adolescent girls with annual income of the family .30% of them had income between Rs.1000- 2000,28.3% had income between Rs.3000-4000,23.3% of them had income between Rs.5000-6000,18.3% were having income more than Rs.6000.



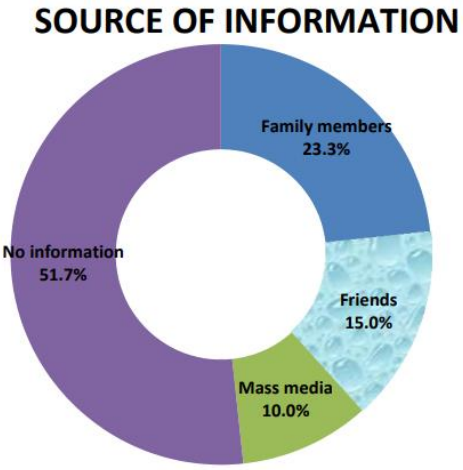
CYLINDRICAL DIAGRAM SHOWING THE TYPE OF RESIDENCE

The given figure shows that 45% of adolescent girls were residing in suburban areas, 30% in urban areas, and 25% in rural areas.



PIE DIAGRAM SHOWING THE DISTRIBUTION OF SUBJECTS ACCORDING TO PREVIOUS KNOWLEDGE OF PCOS

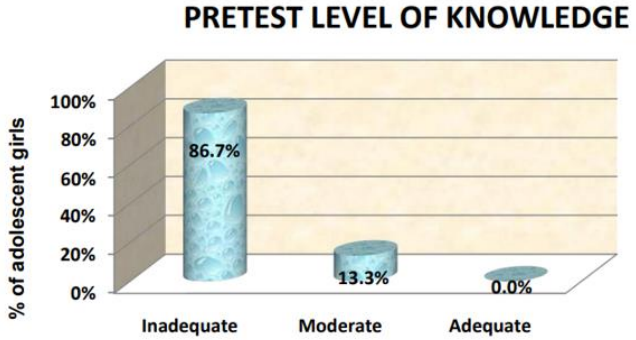
Only 48.3% of adolescent girls had previous knowledge regarding PCOS.



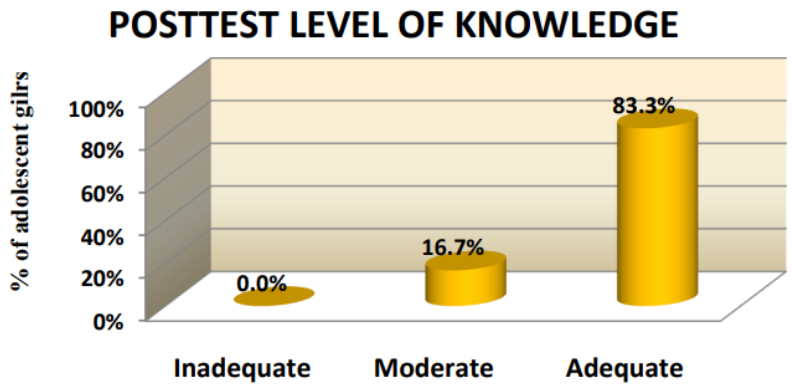
DOUGHNUT DIAGRAM SHOWING THE DISTRIBUTION OF SUBJECTS ACCORDING TO SOURCE OF INFORMATION

51.7% had no information,23.3% had information from family members,15% from friends, and 10% from mass media.

LEVEL OF PRETEST KNOWLEDGE



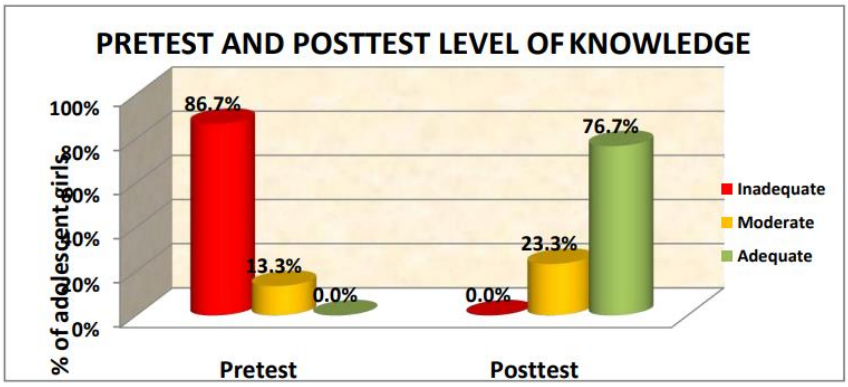
BAR DIAGRAM SHOWING THE LEVEL OF PRETEST KNOWLEDGE



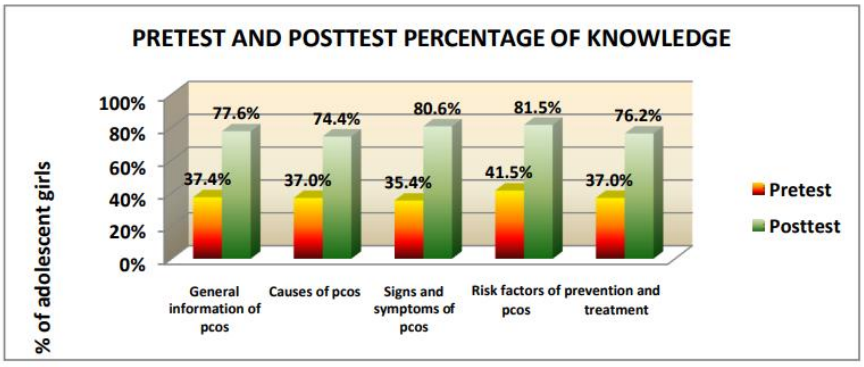
CYLINDRICAL DIAGRAM SHOWING THE POST-TEST KNOWLEDGE SCORE OF SUBJECTS ON DIFFERENT ASPECTS OF PCOS.

COMPARISON OF OVERALL KNOWLEDGE SCORE

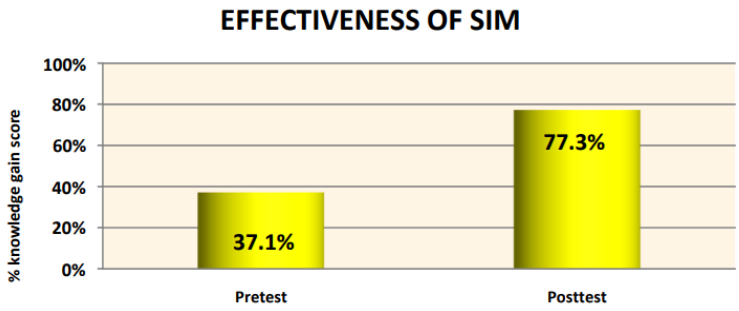
On average, in the pretest, Adolescent girls have 11.13 scores, and, in the post-test, Adolescent girls have 23.20 scores. The difference is a 12.07 score. The difference between the pretest and post-test knowledge scores is large and it is statistically significant. It means in the post-test they can answer 12 questions more than the pretest. Differences between the pretest and post-test scores were analyzed using paired t-tests.



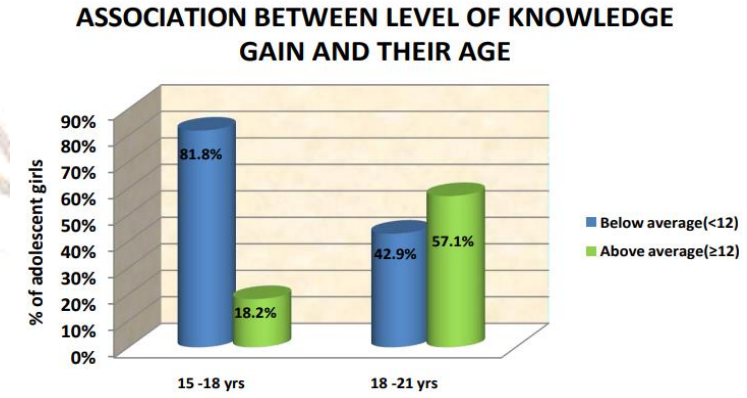
BAR DIAGRAM SHOWING COMPARISON OF PRETEST AND POSTTEST LEVEL OF KNOWLEDGE

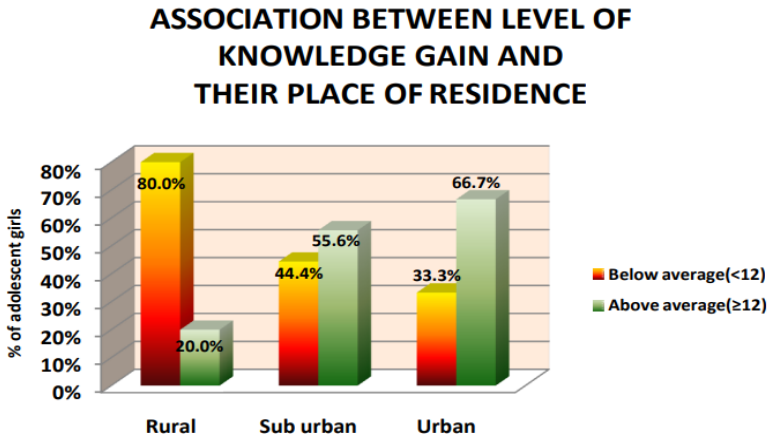


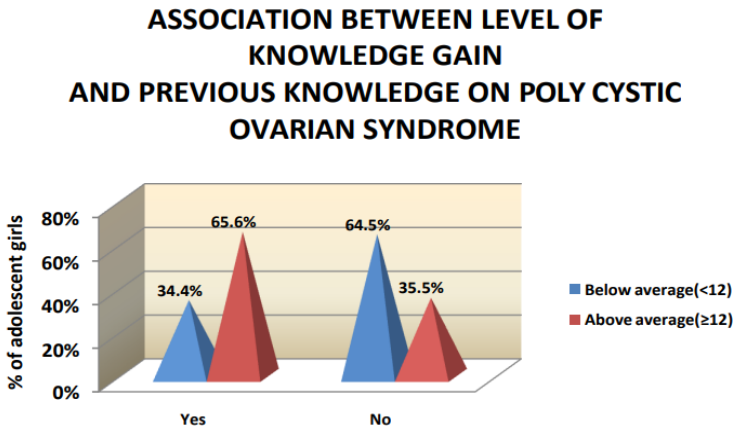
BAR DIAGRAM SHOWING EACH DOMAIN-WISE PERCENTAGE OF KNOWLEDGE GAIN



This table shows the effectiveness of the self-instructional module. Considering the overall aspects, adolescent girls gained 40.2 percent more knowledge after the administration of the self-instructional module.







DISCUSSION

The present study is an effort to evaluate the ―effectiveness of a self-instructional module on knowledge regarding polycystic ovarian syndrome among adolescent girls in selected Pre University colleges at Bangalore‖. To achieve the objectives of the study Pre experimental one-group Pre-test Post-test design was adopted and 60 subjects were selected using a probability simple random sampling technique, fulfilling the inclusion and exclusion criteria. The subjects were evaluated using a structured questionnaire for socio-demographic variables and a knowledge questionnaire regarding PCOS.

CONCLUSION

The following conclusions were drawn based on the findings of the study:

- The pre-test findings showed that the knowledge of adolescent girls regarding PCOS was inadequate.
- The administration of SIM helped adolescent girls to understand more about PCOS.
- Most adolescent girls have having adequate level of knowledge after the administration of SIM.
- The SIM has proved to be a very effective method of transforming information.

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